Available online at www.sciencedirect.com
ScienceDirect
Nuclear Physics B 796 (2008) 422–423
NUCLEAR PHYSICS B
www.elsevier.com/locate/nuclphysb

Erratum

Erratum to: "Searching for doubly charged Higgs bosons at the LHC in a 3-3-1 model" [Nucl. Phys. B 756 (1–2) (2006) 1–15]

J.E. Cieza Montalvo [a], J. Sá Borges [a], Nelson V. Cortez Jr. [b,*], M.D. Tonasse [c]

[a] *Instituto de Física, Universidade do Estado do Rio de Janeiro, Rua São Francisco Xavier 524, 20559-900 Rio de Janeiro, RJ, Brazil*
[b] *Justino Boschetti 40, 02205-050 São Paulo, SP, Brazil*
[c] *Unidade Diferenciada de Registro, Universidade Estadual Paulista, Rua Tamekishi Takano 5, 11900-000 Registro, SP, Brazil*

Received 5 February 2007

Available online 15 January 2008

Eq. (11) must be replaced by the following equation

$$\frac{d\hat{\sigma}}{d\Omega} = \frac{1}{64\pi^2\hat{s}}\big(\overline{|\mathcal{M}_\gamma|^2} + \overline{|\mathcal{M}_{H_1^0}|^2} + \overline{|\mathcal{M}_{H_2^0}|^2} + \overline{|\mathcal{M}_Z|^2} + \overline{|\mathcal{M}_{Z'}|^2} + 2\,\mathrm{Re}\,\overline{\mathcal{M}_{H_1^0}\mathcal{M}_{H_2^0}^*} + 2\,\mathrm{Re}\,\overline{\mathcal{M}_\gamma\mathcal{M}_{Z'}^*}\big),$$

where

$$\frac{d\hat{\sigma}}{d\cos\theta} = \frac{\beta_{H^{\pm\pm}}}{24}\left\{\frac{[\Lambda_1\zeta^{(1)}(\hat{s})m_q v_\eta v_\rho]^2 + [\Lambda_2\zeta^{(2)}(\hat{s})]^2(v_\eta^4 m_u^2 + v_\rho^4 m_d^2)}{(2v_W v_\eta v_\rho)^2} \times \left[8\big(m_q^2 + m_{H^{\pm\pm}}^2\big) - 4\hat{u} - 4\hat{t}\right] + \frac{2\pi}{\hat{s}^3}\left(\frac{\Lambda\alpha Q_q}{\sin\theta_W}\right)^2\left[\big(\hat{s} - 2m_q^2\big)\hat{s} - 4m_{H^{\pm\pm}}^2\big(\hat{s} + 2m_q^2\big) - (\hat{t} - \hat{u})^2\right]\right\} + \sum_{Z,Z'}\frac{\beta_{H^{\pm\pm}}\alpha^2\pi\,\Lambda_{Z(Z')}^2}{36\sin^2\theta_W\cos^2\theta_W\hat{s}(\hat{s} - m_{Z(Z')}^2 + im_{Z(Z')}\Gamma_{Z(Z')})^2}$$

DOI of original article: 10.1016/j.nuclphysb.2006.08.013.
* Corresponding author.
E-mail address: nelson.v.cortez@gmail.com (N.V. Cortez Jr.).

0550-3213/$ – see front matter
doi:10.1016/j.nuclphysb.2008.01.003

$$
\begin{aligned}
&\times \big[8m_{H^{\pm\pm}}^4 \big(g_V^{q(q')^2} + g_A^{q(q')^2}\big) + 8m_{H^{\pm\pm}}^2 \big(2m_q^2 - \hat{t} - \hat{u}\big)\big(g_V^{q(q')^2} + g_A^{q(q')^2}\big) \\
&+ 8m_q^4 \big(g_V^{q(q')^2} + g_A^{q(q')^2}\big) - 8m_q^2 (\hat{t} + \hat{u})\big(g_V^{q(q')^2} + g_A^{q(q')^2}\big) \\
&+ 8m_q^2 \hat{s} g_A^{q(q')^2} + 2(\hat{t} + \hat{u})^2 \big(g_V^{q(q')^2} + g_A^{q(q')^2}\big) - 2\hat{s}^2 \big(g_V^{q(q')^2} + g_A^{q(q')^2}\big)\big] \\
&- \frac{\alpha g Q_q \beta_{H^{\pm\pm}} \Lambda_{Z'} \Lambda_\gamma}{64 \cos\theta_W \hat{s}^2 (\hat{s} - m_{Z'}^2 + i m_{Z'} \Gamma_{Z'})} \big[8m_{H^{\pm\pm}}^4 g_V^{q'} + 16 m_{H^{\pm\pm}}^2 m_q^2 g_V^{q'} \\
&- 8m_{H^{\pm\pm}}^2 g_V^{q'} (\hat{t} + \hat{u}) + 8m_q^4 g_V^{q'} - 8m_q^2 g_V^{q'} (\hat{t} + \hat{u}) + 2g_V^{q'} (\hat{t} + \hat{u})^2 - 2g_V^{q'} \hat{s}^2\big],
\end{aligned}
$$

where we have included the interference term of γ with Z' and in addition we replace still Eqs. (12d) and (12e) with

$$\Lambda_{Z\mu} = -ie \frac{(1 - 4\sin^2\theta_W) v_\eta^2 - 4\sin^2\theta_W v_\chi^2}{4\sin\theta_W \cos\theta_W (v_\eta^2 + v_\chi^2)} (p - q)_\mu, \tag{12d}$$

$$\Lambda_{Z'\mu} = -e \frac{2(1 - 7\sin^2\theta_W) v_\chi^2 - (1 - 10\sin^2\theta_W) v_\eta^2}{4\sqrt{3}\sin\theta_W \cos\theta_W (v_\eta^2 + v_\chi^2)\sqrt{1 - 4\sin^2\theta_W}} (p - q)_\mu. \tag{12e}$$

In this case the signal for detection of $H^{\pm\pm}$ will be very difficult, instead of 585 events obtained per year for Drell–Yan for $f = -99.67$ GeV to produce $H^{\pm\pm}$, we obtain now 120 events per year.